Sexually Transmitted Disease Morbidity

2001

Washington State

Infectious Disease & Reproductive Health
STD/TB Services & IDRH Assessment Unit

Contents

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Executive Summary

The 2001 annual Sexually Transmitted Disease (STD) summary includes morbidity data and incidence rates for Washington State's legally reportable STDs. These include gonorrhea, chlamydia, syphilis, herpes simplex-initial genital infection, chancroid, lymphogranuloma venereum (LGV) and granuloma inguinale (GI). Sexually transmitted diseases are the most commonly reported communicable diseases in Washington State.

Chlamydia

In 2001, chlamydia continued to be the most commonly reported STD in Washington State. Reported cases totaled 13,631, yielding a statewide incidence rate of 228.1 per 100,000 population. Females continued to be selectively tested more frequently and, consequently, diagnosed at a higher rate than males. The statewide chlamydia incidence rate for females was 338.7 per 100,000, which was nearly three times the incidence rate for males — 116.7 per 100,000. Chlamydia cases reported and incidence rates increased in calendar year 2001 by 4.3% and 1.6% respectively over those observed in 2000.

Gonorrhea

In 2001, reported gonorrhea cases increased to 2,991 from the 2,419 cases reported in 2000, yielding a statewide gonorrhea incidence rate of 50.1 per 100,000 population, an increase of 20% over 2000. Gonorrhea screening is universal in all public STD clinics in Washington State and the gender-specific incidence rates are considered to accurately reflect true disease incidence. The female gonorrhea rate in 2001 was 43.4 per 100,000 and the male gonorrhea rate was 56.8 per 100,000. The increase in the 2001 male gonorrhea rate (a 23 % increase from 2000) is partially attributable to an increase in rates observed for Pierce, Snohomish, and King counties. A male-to-female case ratio of 1.3 to 1 provides evidence for a continuing gonorrhea outbreak among men who have sex with men (MSM).

Syphilis

Primary, secondary, and early latent cases of syphilis totaled 76 in 2001, a decrease of 10 cases from 2000. Of the 76 early syphilis cases, 55 were reported in King County, a slight decrease in cases reported in 2000. The statewide primary and secondary syphilis rate was 1.0 per 100,000. When cases of late latent/late syphilis are included in this calculation, the statewide syphilis rate remains stable at 2.9 per 100,000. The number of primary and secondary cases statewide was 57 in 2001, a decrease of 14% in reported cases of P & S syphilis from 2000.

Other STDs

In 2001, 1,833 cases of initial genital herpes and 3 cases of neonatal herpes were reported, yielding an incidence rate of 30.7 per 100,000 population. Non-gonococcal urethritis (NGU) and acute PID have been removed from the list of notifiable conditions and are not described in this report. No cases of lymphogranuloma (LGV), chancroid or granuloma inguinale (GI) were identified in 2001.

Data Sources and Methods

Public and private health care providers complete confidential case reports, which are submitted to local health jurisdictions. These reports are subsequently forwarded to the Washington State Department of Health, STD/TB Services Section and are the primary data source for reported cases of sexually transmitted diseases. Chlamydia, gonorrhea, and syphilis require laboratory confirmation to be counted. Genital herpes may be reported without laboratory confirmation.

A wide variety of persons and agencies submit confidential case reports and the quality and usefulness of specific data elements can vary widely. Information on race and ethnicity are often missing and should be considered unreliable in quantitative analysis. Other data are completely reported, e.g., provider of care, age, sex and county of residence. In 1998, the confidential database that houses STD case report information was modified to be dynamic, allowing for case report information to be corrected or changed as new information on identified cases becomes available. Because of this change, the statistics in this report are for STD case information known as of January 22, 2002.

Crude incidence rates (number of cases/population) were calculated on an annual basis per 100,000 persons. In this report the 2001 rates for all Washington counties were calculated by dividing the number of cases reported for that county in 2001 by the projected 2001 county-specific population (projections by OFM based on the 2000 census). Rates were not calculated for counties reporting five or fewer cases because rates based on low case-counts are considered statistically unreliable. Crude rates are used for the purposes of this report because age-adjusted rates may mask important trends and may result in over- or under-estimation of the true burden of disease.

Data Limitations - Clinically diagnosed cases of STDs (with laboratory confirmation) may be under-reported through this surveillance system. Presumptively diagnosed cases in some instances may not be completely reported, as is also the case with asymptomatic cases not presenting with an STD-related illness. However, clinical practice recommendations from the Centers for Disease Control and Prevention (CDC) state all bacterial STDs should receive laboratory confirmation. Depending upon diagnosing practices, completeness of reporting may vary by source of health care. Some items are known to be under-reported or misreported, e.g., race, ethnicity. Care should be exercised in interpreting these data in light of known data limitations.

Guidelines to Prevent Misuse of Data

Ready access to data by persons unfamiliar with the sources or unacquainted with epidemiology and statistics may lead to misinterpretation or misrepresentation of information. This could result in inappropriate decision-making and potential misdirection of resources. The following guidelines may help prevent data misuse and should always be considered when reviewing data from any source:

1. Understand what you are looking at. What do the data cover? Do the data represent STD infections or persons with an STD? Do the numbers reflect new (incident) cases or cumulative numbers of cases? Are trends presented appropriately, using the same criteria for the numerator and denominator over the period of investigation?

2. Know the limitations of the data source (see above). How is the information collected? How accu-

rate and complete are the data? Are the data representative of a larger group or specific to a particular subset only?

3. Small increases and decreases in numbers can look large if the baseline numbers are also small. For example, if two cases of chlamydia are counted in a particular county in one year and three cases are counted in the next year, this is an increase of 50%. This may sound significant, but in reality a change of one case is not. Caution is warranted.

4. Look for consistencies with other sources of information. Results of an investigation are more believable if they are supported by similar findings from other known studies. This does not mean that new findings should be ignored, but they may deserve a little more attention in establishing their conclusions.

In summary, data should never be taken at face value. They should be closely scrutinized, analyzed, and placed into context before any decisions are made. We encourage anyone with specific questions about how these data should be interpreted to contact STD/TB Services at (360) 236 - 3460.

Glossary

Age-Specific Incidence Rate - An age-specific rate is a rate in which the number of events and population at risk are restricted to an age group [e.g., the numerator (reported cases) and the denominator (mid-year population at risk) refer to a specific age group]. Age-specific rates are useful in comparing age-defined subgroups when rates are strongly age-dependent, as is the case with sexually transmitted diseases.

Case - An episode of disease. If a person is diagnosed with more than one STD in a year, each infection is counted as a separate case.

Confidence Interval - The confidence interval (CI) evaluates the influence of chance or random variability on the statistical estimate or rate (Selvin, 1996). Surveillance data, even based on complete counts, may be affected by chance. If variation in the occurrence of the disease is random and not affected by differences in diagnosing or reporting, then confidence intervals may be calculated to facilitate comparisons over time, between groups, or between geographic locations (e.g., counties). In this situation, calculated confidence intervals should be based on a Poisson probability distribution. In general, if confidence intervals for two separate rates overlap, there is no statistically significant difference between the two rates.

Narrow confidence intervals for rates indicate greater certainty that the calculated rate is a reliable approximation of the true rate. Conversely, wide confidence intervals signal greater potential variability and less certainty that the calculated rate is a good estimate of the true rate.

Crude Rate - The number of events, e.g., reported cases, divided by the total mid-year population. This rate is not “adjusted” or “standardized” for different population discrepancies. In general, no rates should be calculated if the number of events is fewer than five because the rates are considered unstable. Incidence rates allow comparisons between two or more populations by standardizing the denominator and are the most appropriate statistic to use when investigating differences between groups.

Denominator - The lower portion of a fraction used to calculate a rate or ratio; usually, this is the mid-year population. The source for denominator data used in this report was: Washington State Adjusted Population Estimates, Office of Financial Management, Nov, 2001.

Numerator - The upper portion of a fraction used to calculate a rate or a ratio, e.g., new cases identified and submitted by providers to local health jurisdictions and forwarded to the State Department of Health, STD/TB Services Section.

Race and Ethnicity - The STD confidential case report includes race and ethnicity as two separate categories. Race options include White, Black, Asian, Native Hawaiian/Other Pacific Islander, American Indian/Alaska Native, and Other/Unknown. Ethnicity options include Hispanic, Non-Hispanic, and Unknown. Following the enumeration technique of the United States Census Bureau and the Washington State Center for Health Statistics, race and ethnicity are counted separately. For example, if a case report indicates "White" and "Hispanic", the case is counted both as White and as Hispanic. However, historical practice in disease surveillance by the Centers for Disease Control and Prevention often treats Hispanic as a racial category. In light of this difference, care must be taken in comparing Washington State data with national or other state data. Disease rates in this report are presented by race and ethnicity using categories employed on the 2000 census. For backward comparability, rates by race were also calculated by historical categories, which combines Native Hawaiian/Other Pacific Islanders with Asian; those naming other race or multiple-race are excluded (counted as missing) from analysis for this historical categorization. Denominators for historical comparison were obtained by extrapolating 2000 census data to 2001 based on an overall projected 2000-to-2001 population growth of 1.37%, as estimated by the Office of Financial Management, Nov. 2001.

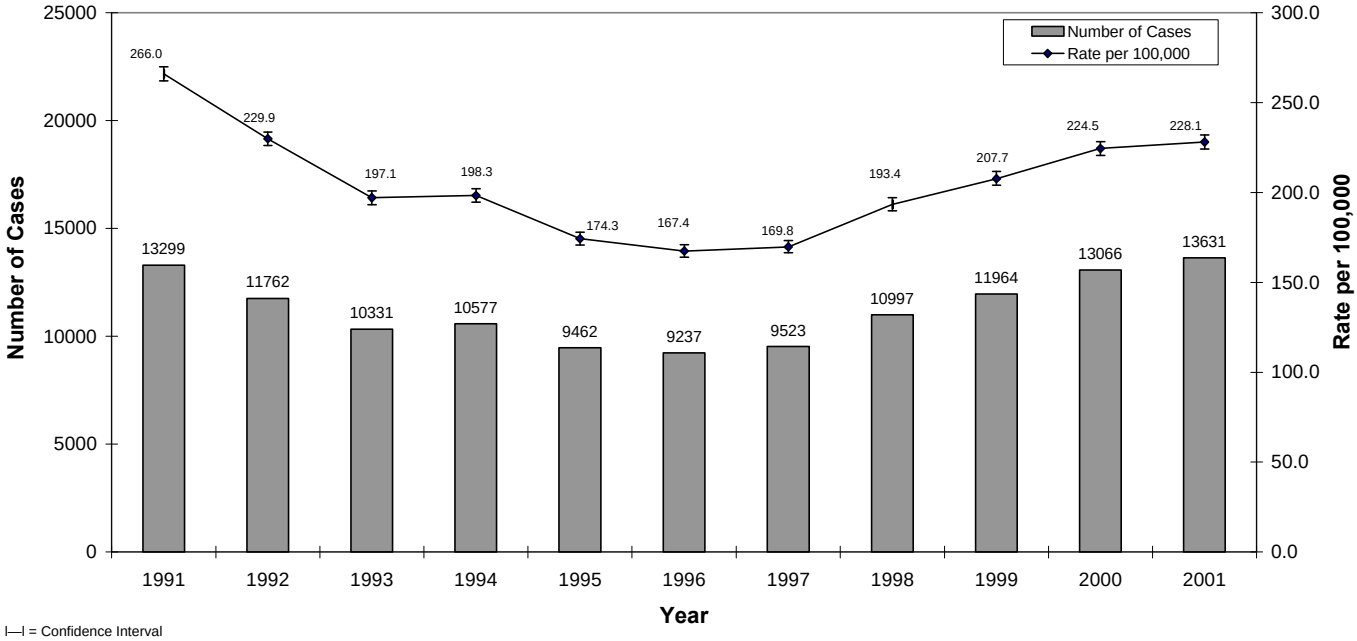
Sensitivity Analysis – A standard sensitivity analysis of gonorrhea and chlamydia reported during 2001 involved assuming the unlikely event that all cases missing race information were alternately either white, Black, Asian/Pacific Islander, or Native American. A 'missing values' interval was generated around a raw point estimate, and the mid-point of these intervals was ranked and compared to calculated rankings.

Chlamydia

Chlamydia trachomatis is the most commonly reported bacterial STD in the United States. Estimates indicate approximately 3 million new infections each year (Kaiser Family Foundation, 1998), of which only a fraction, 702,093 were reported to CDC in 2000. Up to 75% of chlamydia infections in women and many in men are asymptomatic, leaving a large proportion of infected individuals with little reason to seek screening and treatment. Comprehensive screening and treatment of infected individuals have been shown to significantly reduce the prevalence of chlamydial infections. Re-testing of infected individuals at 10 to 12 weeks post-treatment (*not* test-of-cure screening) can also be highly effective in identifying repeat infection and should be adopted as a standard of care for patient management.

Since 1988, Washington State has participated in chlamydia screening and prevalence monitoring activities through the Infertility Prevention Project (IPP). All women attending STD clinics, and women seeking reproductive health services in other facilities who meet selective screening criteria, are the population targeted for chlamydia screening through the IPP. Genital tract chlamydial infections are a major cause of pelvic inflammatory disease (PID), ectopic pregnancy and infertility among women; thus IPP efforts are directed specifically at the female population. Recent efforts at improving the standard of care for male partners of infected women have resulted in increased reporting of male cases. A more sensitive testing method for detecting chlamydial infection in cervical specimens from women and in

Figure 1. Reported Chlamydia Cases and Incidence Rates*, Washington State, 1991-2001



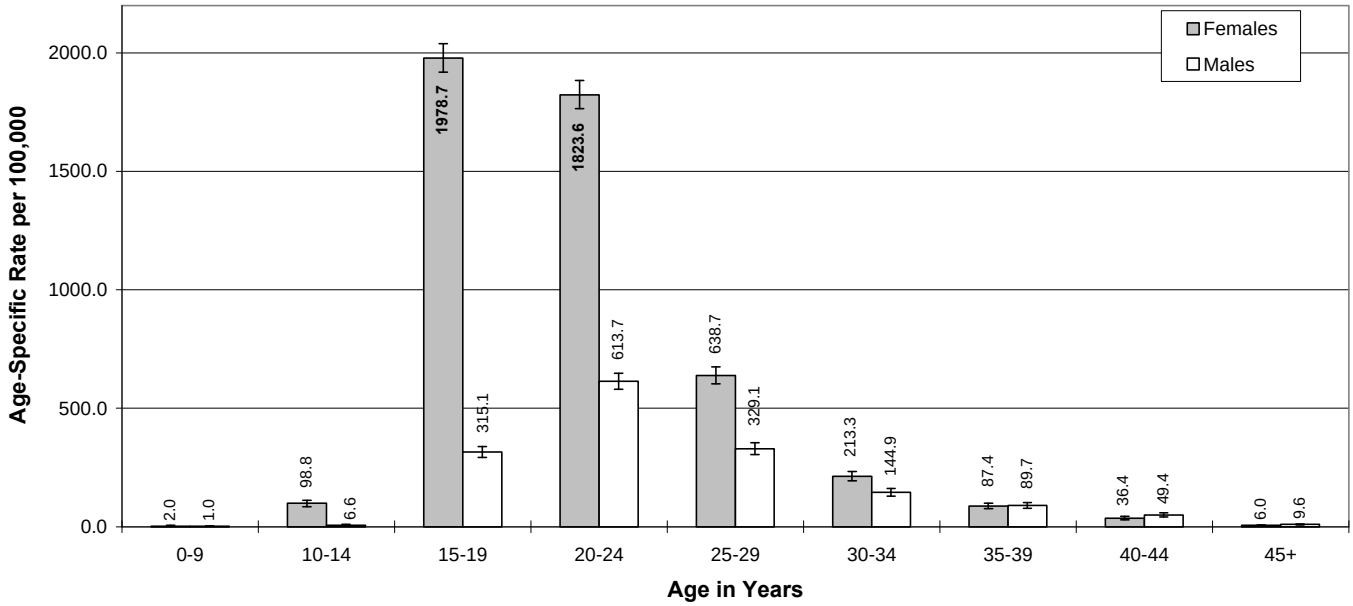
I—I = Confidence Interval
95% Confidence Intervals (CI) evaluate the influence of chance on the rate.
* This is the crude rate, not adjusted for age.

urine samples from men has also been employed, which may have resulted in elevated reporting of cases. In 2001, Washington State initiated a public awareness campaign in six counties in eastern and western Washington aimed at encouraging asymptomatic men 15 – 29 years old to be screened for chlamydial infection.

State-Level Chlamydia Trends

Figure 1 reports the number of chlamydia cases and the calculated incidence rate for Washington State 1991 to 2001. After significant declines through the mid 1990s, reported chlamydia cases have increased 47.6% and calculated rates have increased 36.3% since reaching a low in 1996. Though the number and rate of chlamydia infection has increased over the last five years, the incidence rate for Washington State continues to remain below the most recently reported national incidence rate of 257.5 per 100,000 (CDC, 2000).

Figure 2. Age-Specific Chlamydia Incidence Rates* by Gender, Washington State, 2001



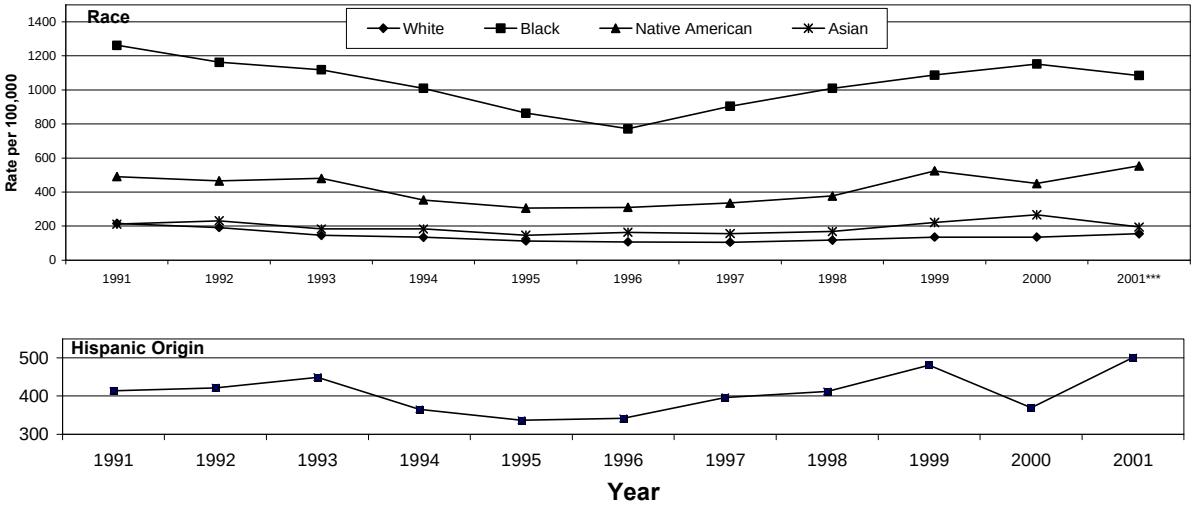
|—| = Confidence Interval
95% Confidence Intervals (CI) evaluate the influence of chance on the rate.
* Age missing for 45 (1.3%) male cases, 125 (1.2%) female cases and excluded from calculated rate.

Figure 2 presents the age-specific incidence rate by gender for chlamydia cases reported in Washington State in 2001. Of immediate note in this figure are the disproportionate incidence rates among younger women:

- Peak female age-specific rates in 15-19 year olds
- Peak male age-specific incidence in 20-24 year olds
- 71.5% of all cases reported in the 15-24 age group
- Increase from 2000 noted primarily in females 15-19
- Slight decrease in male rates noted, especially among 15 – 19 year old males

Several factors contribute to this pattern, including potentially selective screening of young women and a higher incidence of sexual activity in the 15 – 24 age group. The overall rate of chlamydia among women is observed to be 338.7 per 100,000 while the male rate is almost three times less at 116.7 per 100,000. Men diagnosed with nongonococcal urethritis (NGU) are often treated presumptively; no laboratory tests are performed. Laboratory confirmation of chlamydia infection would automatically trigger a report to the local health jurisdiction and the Department of Health. For this reason, chlamydia may be significantly under-reported among males. In light of this, and the well-documented disparity in screening males versus females in reproductive health settings, the true chlamydia morbidity may be much closer to 1:1 for males and females.

Figure 3. Chlamydia Incidence Rates* by Race**, Washington State, 1991-2001



Note: A standard sensitivity analysis (see Glossary) of chlamydia reports was performed to generate a 'missing values' interval around the raw point estimate. Analysis reveals that chlamydia rates for Blacks, Native Americans and Asian cases are within the confidence interval generated. Therefore, no meaningful statements relating to relative difference or similarity in rates between these groups can be made.

* This is the crude rate, not adjusted for age. Race data missing for 16.2% of cases; ethnicity data missing for 23% of cases and 4.3% indicate multiple race or other race (excluded from analysis). Because of missing data, comparisons between races/ethnicities is not advised.
** Race and ethnicity counted separately, e.g. a case can be both "White" and "Hispanic."
***For 2001, Asian, Native Hawaiian, Other Pacific Islander are included in single category.

The trend in chlamydia incidence rates by historical race and Hispanic origin categories are shown in **Figure 3**. A slight decrease is noted in 2001 for Asians, rates remain stable for Whites and increases are noted for Blacks, Native Americans/Alaska Natives and those of Hispanic origin. It should be noted here that direct comparison between race and Hispanic origin is not advisable in that these are not mutually exclusive categories (e.g., cases can be counted as Hispanic *and* White, or Hispanic *and* Black, etc.).

Additionally, a significant proportion of chlamydia cases are reported without race and ethnicity information. A standard sensitivity analysis (see Glossary) of chlamydia reports was performed to generate a 'missing values' interval around the raw point estimate. Analysis reveals that chlamydia rates for Blacks, Native Americans and Asian cases are within the confidence interval generated. Therefore, no meaningful statements relating to relative difference or similarity in rates between these groups can be made.

Changes in the method for collecting race and ethnicity data introduced by the Census Bureau in the 2000 Census also complicate analysis of changes in rates over time. STD case reports were changed to reflect the new race schema in 2001 and rates calculated using this new system are presented in **Table A**. It should be noted that the previous caveat applies to race data using new categorizations as well.

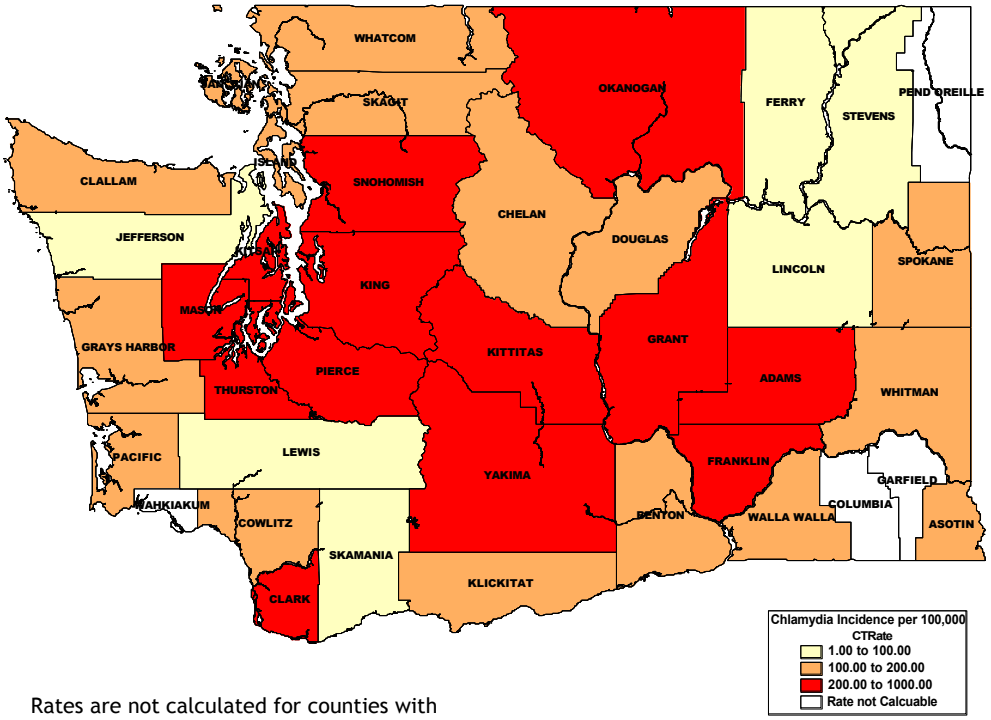
Lack of a true biological basis for race and no objective standards for racial/ethnic classification in disease surveillance, argues for a cautious approach to interpreting disease incidence rates by race or ethnicity. Race and ethnicity may be correlated with other potentially significant ecological determinants of health status, such as socio-economic status, geographic variation in access to health care services, and sexual mixing patterns; analysis by race and ethnicity is confounded by these unknown factors.

Table A, Chlamydia Rates by Census 2000 Race Categories

Race Category*	Number of Cases Reported	Rate per 100,000**
White	7547	154.4
Black	2074	1,084.7
Native American/Ak. Native	529	553.4
Asian	548	166.8
Native Hawaiian/Other P.I.	135	564.9
Other Race	379	162.6
Multiple Race	207	96.2
Hispanic Origin***	2243	500.5

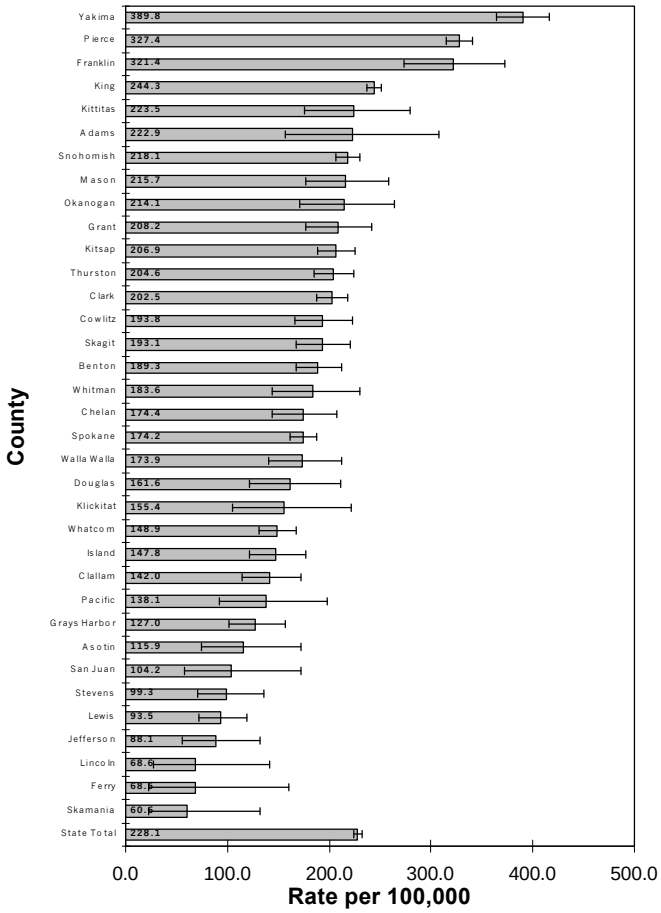
* Race data missing for 16.2%, ethnicity data missing for 23% of cases
** Denominators obtained by extrapolating race/ethnicity data from 2000 census data, OFM, Nov 2001.
***Ethnicity not exclusive of race, i.e. cases can be counted as both white and Hispanic

Figure 4. Chlamydia Incidence Rates by County Washington State, 2001



Rates are not calculated for counties with fewer than 5 cases because they are unreliable

Figure 5. Chlamydia Incidence Rates* by County, (95% CI) Washington State, 2001 Ranked from Higest to Lowest**



* This is the crude rate, not adjusted for age. Counties with fewer than 5 cases not shown. I—I = Confidence Interval ** 95% Confidence Intervals (CI) evaluate the influence of chance on the rate.

County-Level Chlamydia Trends

To assess the burden of disease and compare this burden across counties of differing population sizes, county-specific incidence rates were calculated (**Figure 4**). Thirty-five of Washington's 39 counties reported at least five cases of chlamydia. **Figure 5** shows these county-specific incidence rates ranked from highest to lowest.

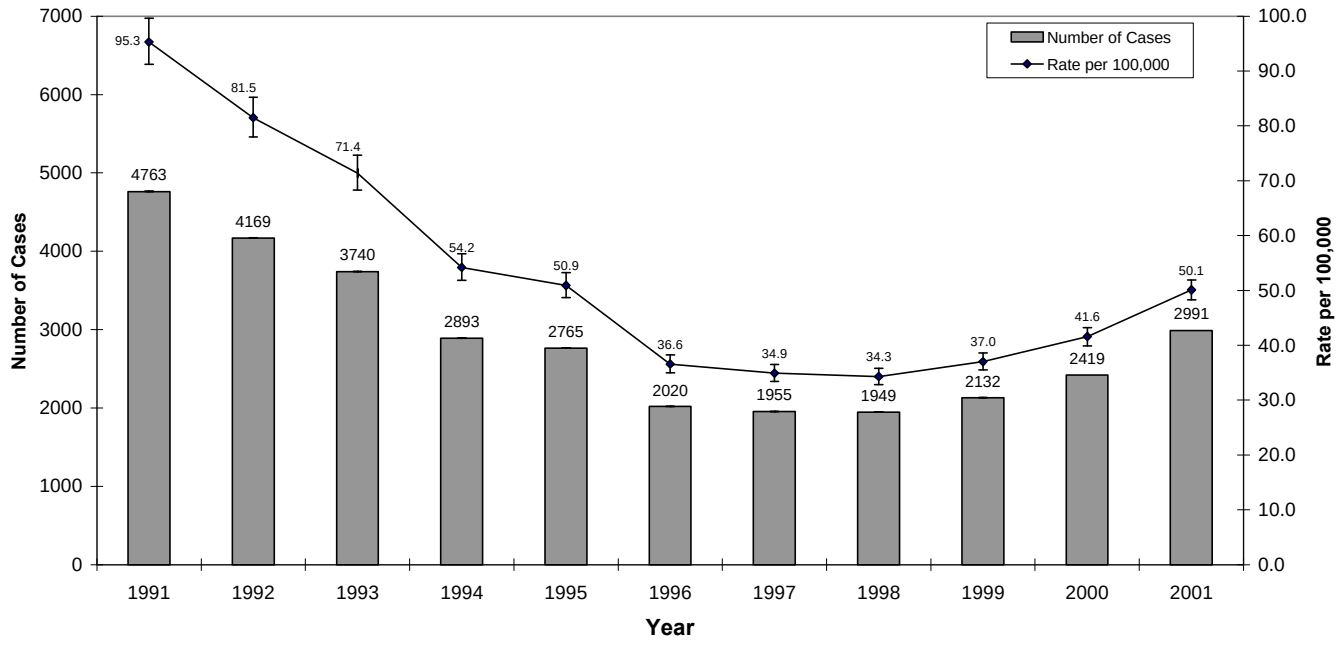
Chlamydia incidence rates for males and females by county are presented in **Table 1**. The largest number of chlamydia cases (4,295) was reported by King County. King County reported the largest number of male cases (1,389). The highest male incidence rate, 182.6 per 100,000 was reported from Pierce County. King County also reported the largest number of female chlamydia cases (2,906), though the female incidence rate, 329.0 per 100,000 for females in King County was ranked sixth among counties in Washington State. The highest county-specific incidence rate for chlamydia among women was Yakima County with a rate of 636.8 per 100,000. Due to under-diagnosing, under-reporting, and the asymptomatic nature of the disease, chlamydia incidence rates are considered conservative. These assumptions make county-to-county comparisons generally unreliable, especially among counties with relatively small populations.

Gonorrhea

Infections due to *Neisseria gonorrhoeae* remain a major cause of morbidity in the United States. Negative consequences of gonorrhea infection may include Pelvic Inflammatory Disease (PID), tubal infertility, ectopic pregnancy, and chronic pelvic pain. Epidemiologic studies provide strong evidence that gonococcal infections may also facilitate HIV transmission.

State-Level Gonorrhea Trends

Figure 6. Reported Gonorrhea Cases and Incidence Rates* (95% CI), Washington State, 1991-2001**



* This is the crude rate, not adjusted for age. ⊢⊣ = Confidence Interval
** 95% Confidence Intervals (CI) evaluate the influence of chance on the rate.

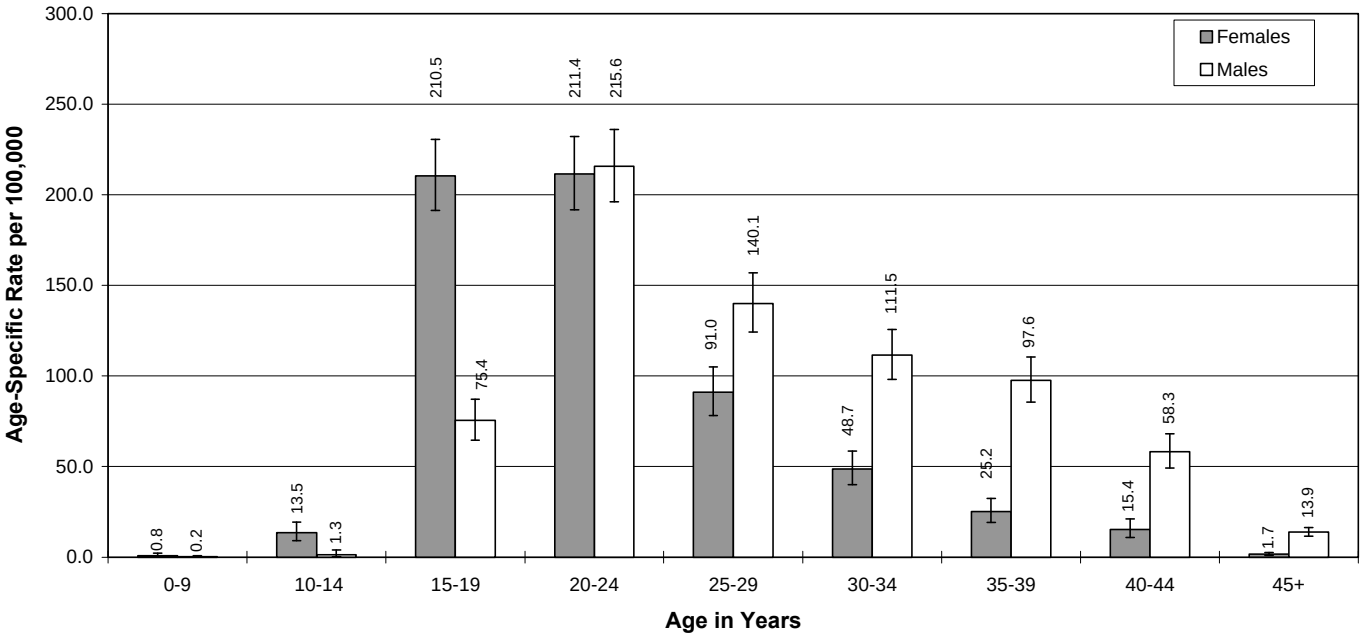
National gonorrhea rates precipitously declined through the late nineties and have remained essentially unchanged from 1998 to the present. The United States, as a whole, is on the way to achieving the Healthy People Year 2010 goal of 19 per 100,000 for gonorrhea incidence. In Washington State gonorrhea incidence declined through 1998 but has increased over the most recent three reporting years, as seen in **Figure 6**.

- Gonorrhea rate has increased 46% from a low of 34.3 per 100,000 observed in 1998
- Observed gonorrhea rates have remained consistently higher among African Americans than any other racial/ethnic group
- Incidence is highest in the 20 – 24 age group for both males and females

- The statewide increase noted from 1998 to 2001 is influenced in part by documented increases in gonorrhea infection among men-who-have-sex-with-men (MSM) in Western Washington

An ongoing outbreak of gonorrhea among MSM in Seattle-King County continues to widen the incidence rate gap between males and females by increasing the number of cases of gonorrhea among men. Gonococcal infections in MSM reported by the PHSKC STD clinic more than doubled from 1997 to 1998 and 19% of those cases were also co-infected with HIV. It has been estimated that the rate of gonococcal infection in MSM in King County increased from 180 per 100,000 in 1997 to 363 per

Figure 7. Age-Specific Gonorrhea Rates* (95% CI) by Gender, Washington State, 2001**



* Age missing for 13 (0.9%) female cases and 17 (1.0%) male cases and excluded from calculated rate.
** 95% Confidence Intervals (CI) evaluate the influence of chance on the rate. I—I = Confidence Interval

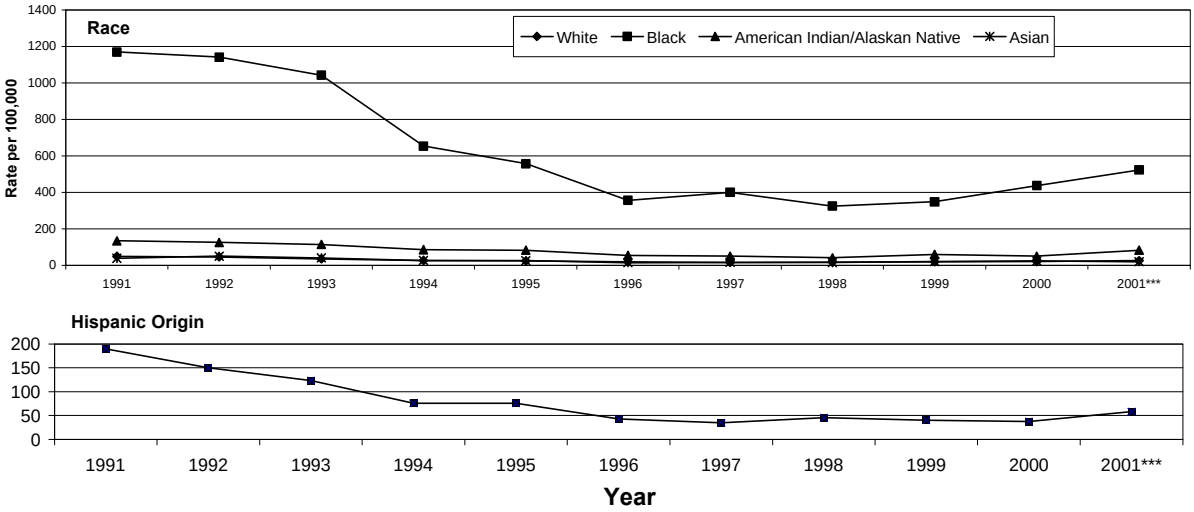
100,000 in 2000 (projected from data through 9/2000) in contrast to the rate among presumed heterosexuals in King County of 57 per 100,000 (Whittington, W, 12/2000).

The age distribution of gonorrhea also differs between genders and age groups as seen in **Figure 7**. Nationally, gonorrhea incidence for females peaks among 15-19 year olds and peaks for males among 20-24 year olds. For Washington State the peak incidence rate for both males and females is observed in the 20-24 year old age group; however, females 15 –19 experience similar incidence rates. The greatest incidence of disease among females, 66.1% of total morbidity, is among 15-24 year olds, while for males the burden of disease is distributed more evenly among those 25 and older. Males had a higher gonorrhea incidence rate (56.8 per 100,000) than females in 2001 (43.4 per 100,000). Factors contributing to the different distribution of gonorrhea incidence in different age groups among men and women are the presumed age gap between men and women in sexual relationships as well as the previously noted outbreak among MSM whose median reported age was 30 (*ibid*).

In Washington State, decreases in gonorrhea incidence were seen across historic racial and ethnic catego-

ries between 1991 and 1998 (**Figure 8**). Since then, rates have increased most precipitously for non-Whites and increases have been noted for those of Hispanic origin and Native Americans/Alaska Natives as well. Racial disparities in disease burden clearly continue to exist. Gonococcal infection appears to be resurgent in core populations and recent evidence suggests that a greater proportion of infections may be asymptomatic than previously assumed (Turner, Rogers, Miller, et al. 2002).

Figure 8. Gonorrhea Incidence Rates* by Race**, Washington State, 1991-2001



Note: A standard sensitivity analysis (see Glossary) of gonorrhea reports was performed to generate a 'missing values' interval around the raw point estimate. Analysis reveals that chlamydia rates for Whites, Native Americans and Asian cases are within the confidence interval generated. Therefore, no meaningful statements relating to relative difference or similarity in rates between these groups can be made.

* This is the crude rate, not adjusted for age. Race data missing for 18.1% of cases; ethnicity data missing for 29.8% of cases and 2.9% indicate multiple race or other race (excluded from analysis). Because of missing data, comparisons between races/ethnicities is not advised.
** Race and ethnicity counted separately, e.g. a case can be both "White" and "Hispanic."
***For 2001, Asian, Native Hawaiian, Other Pacific Islander are combined in a single category

In 2001, 18.1% of reported cases of gonorrhea had missing race data and 29.8% of case reports were missing ethnicity data. A standard sensitivity analysis of gonorrhea reports (see Glossary) was performed to generate a 'missing values' interval around the raw point estimate. Analysis reveals that gonorrhea rates for Whites, Native Americans and Asian cases are within the confidence interval generated. No meaningful statements relating to relative difference or similarity in rates between these groups can be made, with the exception that rates observed for Blacks exceed those of other racial groups. Table B shows incidence rates calculated for the Census 2000 race categorization, where the same caveat applies.

Table B, Gonorrhea Rates by Census 2000 Race Categories

Race Category*	Number of Cases Reported	Rate per 100,000**
White	1215	24.9
Black	1001	523.5
Native American/Ak. Native	78	81.6
Asian	56	17.0
Native Hawaiian/Other P.I.	10	41.8
Other Race	45	19.3
Multiple Race	39	18.1
Hispanic Origin***	260	58.0

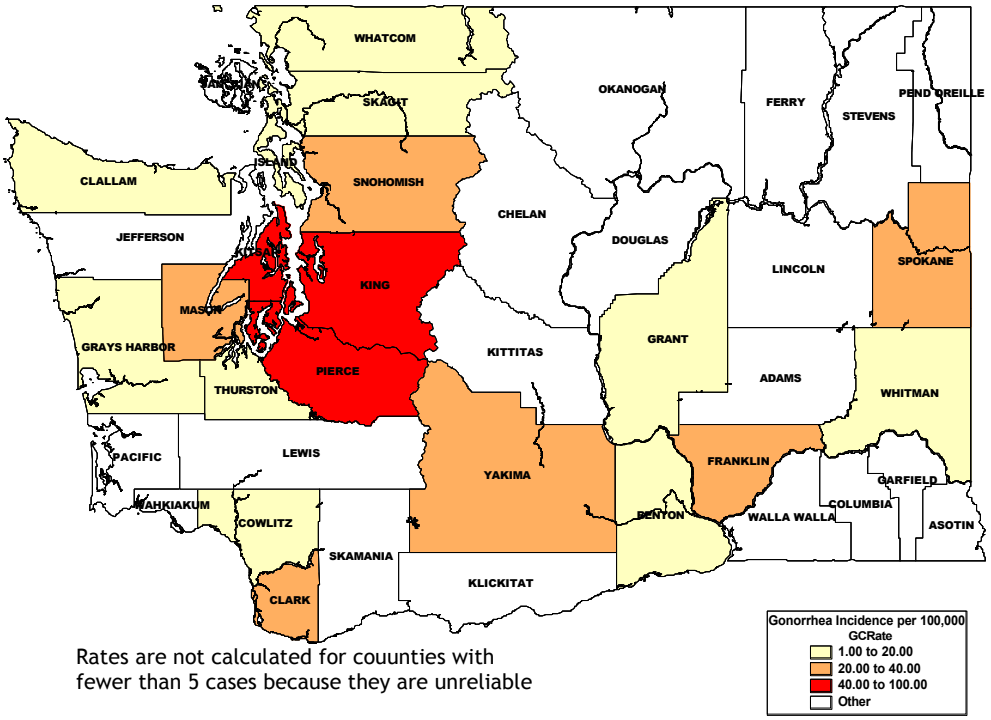
* Race data missing for 18.1%, ethnicity data missing for 29.8% of cases
** Denominators obtained by extrapolating race/ethnicity data from 2000 census data, OFM, Nov 2001.
***Ethnicity not exclusive of race, i.e. cases can be counted as both white and Hispanic

Lack of a true biological basis for race and no objective standards for racial/ethnic classification in disease surveillance, argues for a cautious approach to interpreting disease incidence rates by race or ethnicity. Race and ethnicity may be correlated with other potentially significant ecological determinants of health status, such as socio-economic status, geographic variation in access to health care services, and sexual mixing patterns; analysis by race and ethnicity is confounded by these unknown factors.

County-Level Gonorrhea Trends

The distribution of gonorrhea not only differs by gender, age, and race, as noted above, it also differs by geography. At the county-level, gonorrhea incidence impacts dense urban versus rural counties differently (**Figures 9 & 10**):

Figure 9. Gonorrhea Incidence Rates by County Washington State, 2001

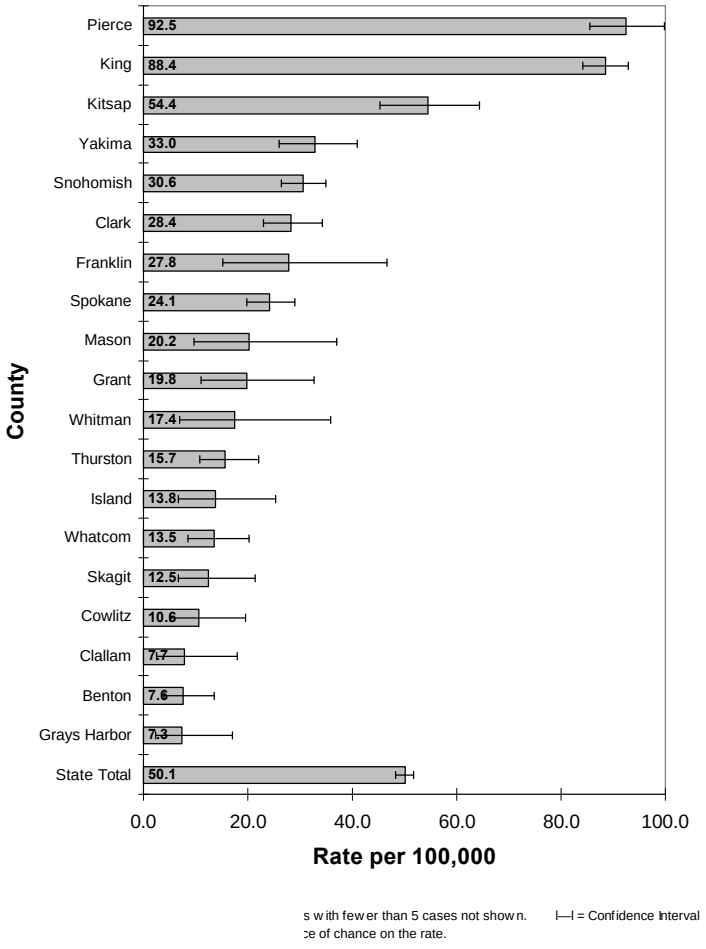


Rates are not calculated for couunties with fewer than 5 cases because they are unreliable

- Highest gonorrhea incidence rate is observed for Pierce County, 92.5 per 100,000
- King County has second highest observed rate at 88.4 per 100,000
- Kitsap County also exhibits a rate higher (54.4 per 100,000) than the statewide incidence rate of 50.1 per 100,000

To further illustrate the differences in gonorrhea disease burden across counties, gender-specific and age-specific rates were calculated. Gonorrhea incidence rates for males and females by county are presented in **Table 3,** page 21. For most counties in Washington State, there were either no gonorrhea cases or too few cases to calculate a stable incidence rate by gender. Among the 15 counties with enough cases to allow calculation of a gender-specific incidence rate, Pierce County has the highest rates for females at 85.9 per 100,000 and King County had the highest rate among males at 111.4 per100,000, providing further evidence for an ongoing gonorrhea outbreak among MSM.

Figure 10. Gonorrhea Incidence Rates* (95% CI)** by County, Washington State, 2001

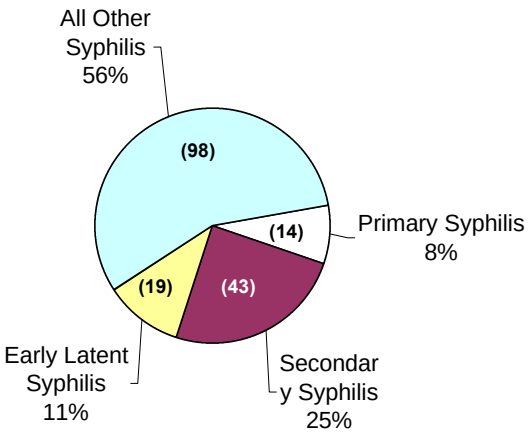


s with fewer than 5 cases not shown. ⊢⊣ = Confidence Interval
ce of chance on the rate.

Syphilis

Syphilis is caused by infection with the spirochete *Treponema pallidium* and has four distinct stages - primary, secondary, latent and late latent. A painless genital ulcer that will resolve spontaneously without treatment characterizes primary syphilis infection. Secondary infection most commonly presents as a rash of varying duration, which may be recurrent. An infected person who does not get treatment may infect others during the first two stages (primary, secondary). Early latent syphilis is defined as an infection that is less than one year old and can be perinatally infectious or if a secondary relapse occurs. Trans-placental transmission of syphilis is a potential cause of fetal loss and congenital abnormalities. In the late latent stage, untreated syphilis, although not contagious, can cause serious heart abnormalities, mental disorders, blindness, other neurological problems and death. All four stages of syphilis were reported in Washington State in the current report year (**Figure 11**).

Figure 11. Syphilis Cases by Disease Stage*, Washington State, 2001



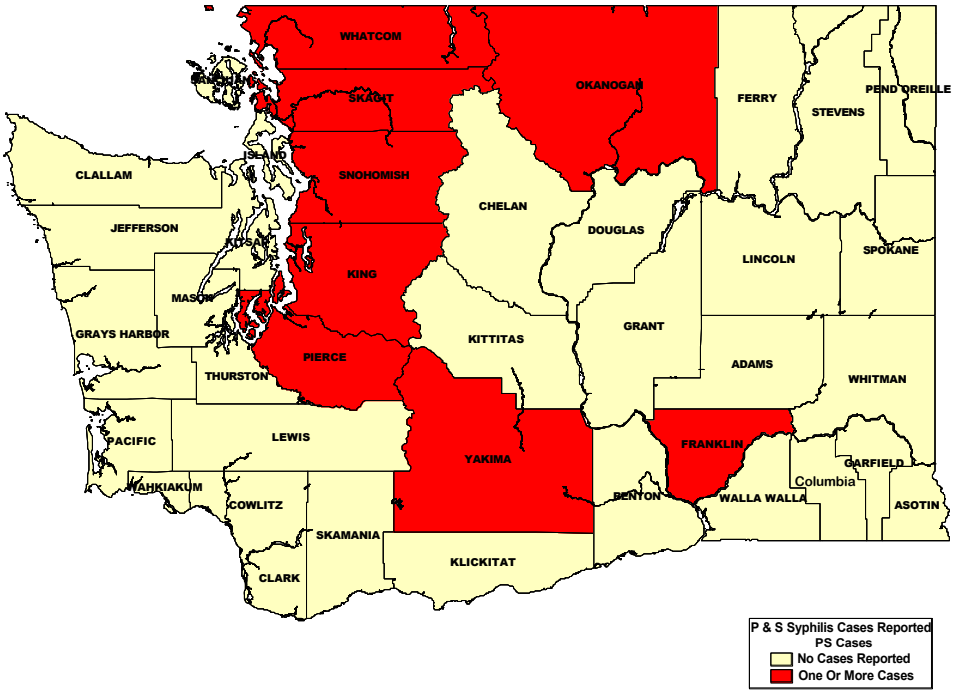
*Reported syphilis cases, n=174

State-Level Syphilis Trends

- Incidence rate for primary and secondary (P & S) syphilis has decreased slightly from 1.1 per 100,000 in 2000 to 1.0 per 100,000 in 2001
- An outbreak of syphilis among men who have sex with men in King County continues

- Lower proportion of P&S cases vs. other stages of disease reported in 2001 highlights the importance of screening and education to at-risk communities

Figure 12. Primary and Secondary Syphilis Cases by County, Washington State, 2001

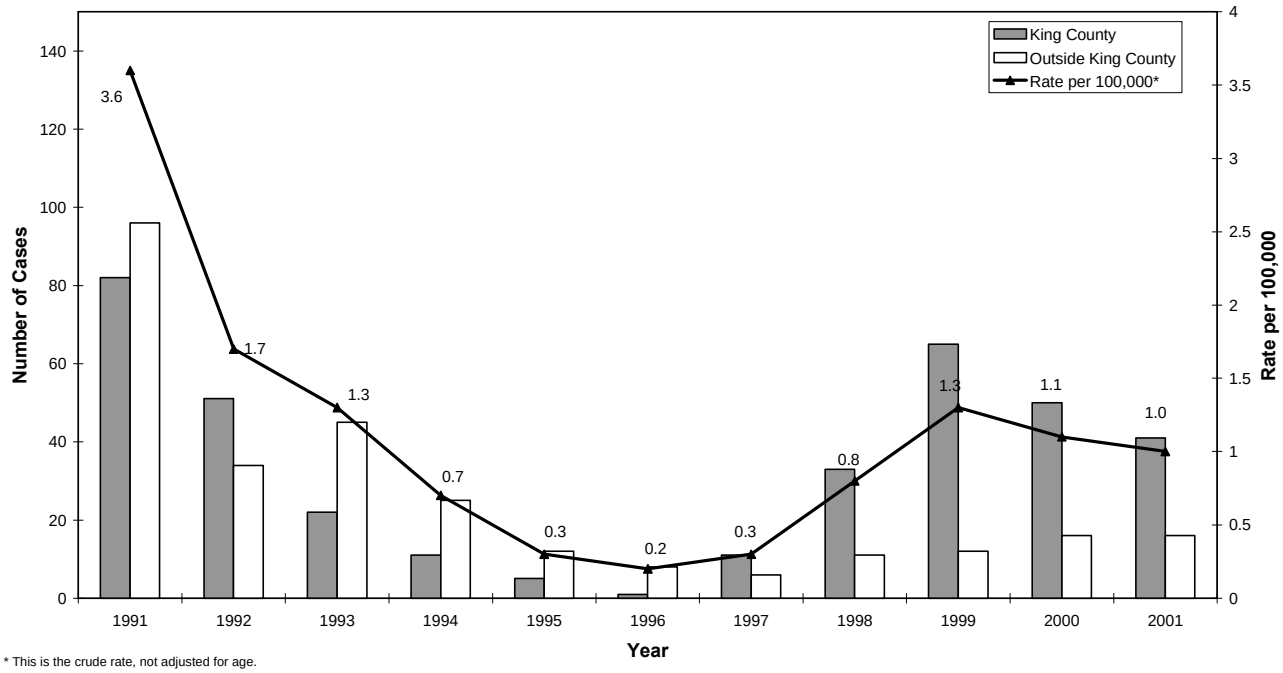


More than 72% of P & S syphilis incidence in Washington State in 2001 was reported from King County (**Figure12, 13**). This pattern has been observed since 1997 in contrast to previous outbreaks where a greater proportion of cases were reported from counties other than King County. There continues to be a large disparity between male and female rates (**Figure 14**), which strongly suggests that the ongoing outbreak in Seattle-King County involves MSM.

In 1996, King County reported only a single case of P & S syphilis. In 2001, 55 cases of P & S syphilis were reported from King County. This outbreak continues to be centered primarily among men who have sex with men. It has been proposed that the transmission behaviors responsible for this outbreak have occurred primarily in anonymous sex settings. These findings strongly reinforce the importance of routine STD screening for MSM in primary HIV care settings.

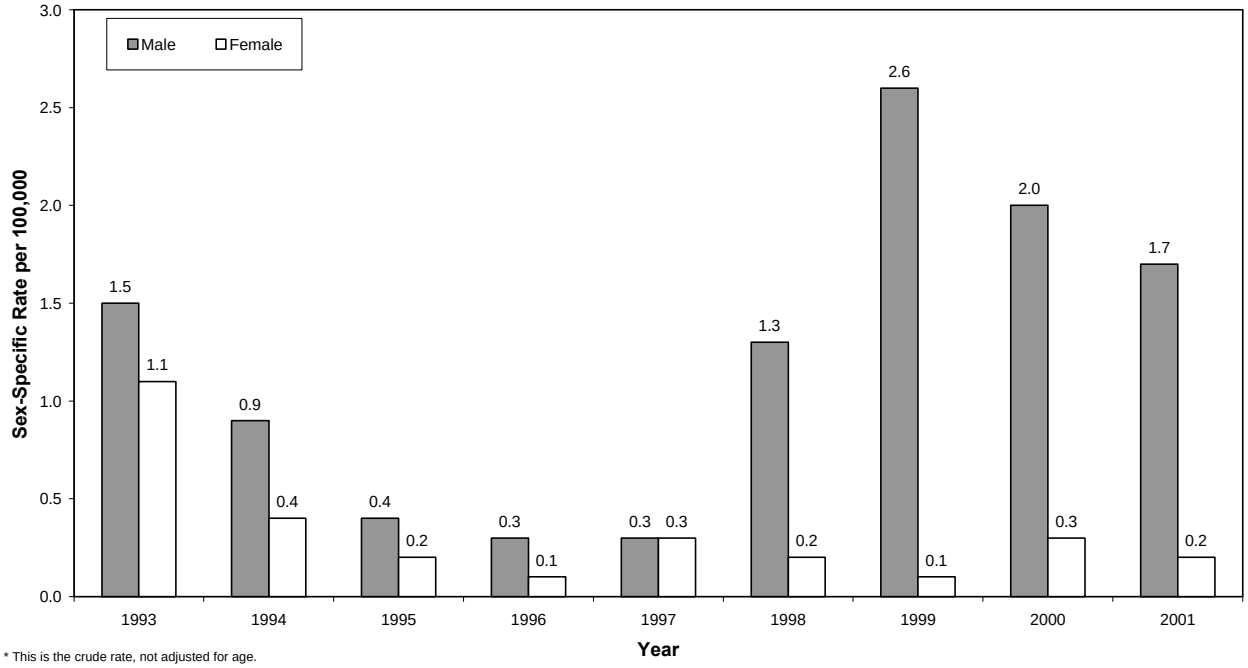
Cases of P & S and early latent syphilis reported statewide in 2001 declined 11.6% from cases reported in 2000. Of note in **Figure 11** is the relatively high proportion of secondary stage disease versus primary and early latent reported in 2001. The expected ratio would be approximately one to one in the relationship between P & S and early latent. The fact that there is a larger proportion of secondary disease suggests that, for reasons discussed above, there continues to be an unrecognized burden of disease and that continued surveillance, education and sustainable interventions are necessary for the control of infectious syphilis.

Figure 13. Reported Primary & Secondary Syphilis Cases and Incidence Rates*, King County vs. Washington State, 1991-2001



* This is the crude rate, not adjusted for age.

Figure 14. Primary & Secondary Syphilis Incidence Rates*, Males vs. Females, Washington State,1993-2001



* This is the crude rate, not adjusted for age.

Syphilis

Other STDs

In addition to chlamydia, gonorrhea, and syphilis there are four additional STDs that are currently reportable to the state Department of Health. Initial genital herpes infection, chancroid, lymphogranuloma venereum (LGV), and granuloma inguinale (GI) currently require reporting by health care providers.

Genital Herpes, Initial Infection

Washington State is one of a handful of states that require reporting of initial infection of genital herpes. Only the initial infection is tracked in the state surveillance system. In 2001, 1,836 cases of initial herpes infection and three cases of neonatal herpes were reported (30.7 per 100,000 persons). Unlike chlamydia and gonorrhea, a suspected herpes infection does not require laboratory confirmation in order for the case to be reported to the state health department. Given recent CDC estimates of genital herpes prevalence in the United States, cases of initial genital herpes reported in Washington State are most likely an underestimation of true incidence.

Others

Chancroid, LGV, and GI are very rare STDs. Only 12 states reported any cases of chancroid in 2000, with three states (New York, South Carolina & Texas) reporting 70.5% of the total of 78 cases. No cases of chancroid, LGV or GI were reported in Washington State in 2001.

Table 1
Reported Chlamydia Cases and Incidence Rates
By Sex and County

COUNTY	2001 POPLUATION		CHLAMYDIA			
	MALE	FEMALE	MALE	RATE/100,000	FEMALE	RATE/100,000
Adams	8,484	8,116	4	*	33	407
Asotin	9,870	10,830	3	*	21	194
Benton	71,973	72,827	54	75	220	302
Chelan	33,415	33,685	20	60	97	288
Clallam	32,201	32,599	18	56	74	227
Clark	175,030	177,570	174	99	540	304
Columbia	2,001	2,099	0	*	1	*
Cowlitz	46,538	47,362	9	19	173	365
Douglas	16,260	16,540	7	43	46	278
Ferry	3,787	3,513	1	*	4	*
Franklin	26,312	24,088	28	106	134	556
Garfield	1,188	1,212	0	*	0	*
Grant	38,806	37,094	18	46	140	377
Grays Harbor	34,052	34,448	14	41	73	212
Island	36,268	36,132	26	72	81	224
Jefferson	12,774	13,326	6	47	17	128
King	875,140	883,160	1,389	159	2,906	329
Kitsap	118,257	115,143	108	91	375	326
Kittitas	16,890	17,110	21	124	55	321
Klickitat	9,631	9,669	6	62	24	248
Lewis	34,464	35,036	6	17	59	168
Lincoln	5,059	5,141	1	*	6	117
Mason	25,642	23,958	29	113	78	326
Okanogan	19,784	19,916	12	61	73	367
Pacific	10,414	10,586	9	86	20	189
Pend Oreille	5,921	5,879	0	*	4	*
Pierce	354,885	358,515	648	183	1,688	471
San Juan	7,020	7,380	5	71	10	136
Skagit	51,554	52,546	33	64	168	320
Skamania	4,983	4,917	1	*	5	102
Snohomish	309,576	309,024	334	108	1,015	328
Spokane	207,355	215,045	139	67	597	278
Stevens	20,066	20,234	13	65	27	133
Thurston	102,962	107,238	87	84	343	320
Wahkiakum	1,902	1,898	0	*	2	*
Walla Walla	28,111	27,089	25	89	71	262
Whatcom	84,065	86,535	42	50	212	245
Whitman	20,390	19,910	23	113	51	256
Yakima	112,070	112,430	159	142	716	637
STATE TOTAL	**2,975,100**	**2,999,800**	**3,472**	**117**	**10,159**	**339**

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Table 2
Reported Chlamydia Cases and Incidence Rates
By Age (15-24 Years) and County

COUNTY	2001 POPULATON		CHLAMYDIA			
	15-19	20-24	15-19	RATE/100,000	20-24	RATE/100,000
Adams	1,514	1,107	9	594	15	1,355
Asotin	1,538	1,137	5	325	9	792
Benton	11,909	8,430	115	966	98	1,163
Chelan	5,240	3,730	38	725	35	938
Clallam	4,520	2,965	49	1,084	27	911
Clark	25,493	20,985	261	1,024	252	1,201
Columbia	298	191	1	*	0	*
Cowlitz	6,909	5,383	72	1,042	53	985
Douglas	2,619	1,763	24	916	19	1,078
Ferry	699	329	2	*	1	304
Franklin	4,621	3,839	62	1,342	57	1,485
Garfield	207	76	0	*	0	*
Grant	6,649	5,080	59	887	60	1,181
Grays Harbor	5,256	3,611	45	856	26	720
Island	4,802	4,554	33	687	43	944
Jefferson	1,526	821	5	328	11	1,340
King	109,936	120,782	1,425	1,296	1,387	1,148
Kitsap	17,318	15,478	179	1,034	188	1,215
Kittitas	3,325	5,454	21	632	41	752
Klickitat	1,461	802	15	1,027	10	1,247
Lewis	5,637	3,802	27	479	28	736
Lincoln	728	322	3	*	3	*
Mason	3,544	2,571	47	1,326	29	1,128
Okanogan	3,153	1,877	31	983	35	1,865
Pacific	1,425	784	15	1,053	9	1,148
Pend Oreille	885	392	1	*	1	*
Pierce	53,910	49,645	784	1,454	974	1,962
San Juan	684	444	4	*	5	*
Skagit	8,031	6,021	78	971	62	1,030
Skamania	765	411	3	*	2	*
Snohomish	44,259	37,288	540	1,220	445	1,193
Spokane	33,321	31,352	260	780	280	893
Stevens	3,391	1,596	19	560	7	439
Thurston	16,154	13,803	159	984	173	1,253
Wahkiakum	263	135	1	*	1	*
Walla Walla	4,889	5,031	39	798	35	696
Whatcom	14,283	17,528	93	651	108	616
Whitman	4,989	9,643	21	421	45	467
Yakima	18,829	15,359	333	1,769	289	1,882
STATE TOTAL	**434,980**	**404,521**	**4,878**	**1,122**	**4,863**	**1,202**

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Table 3
Reported Gonorrhea Cases and Incidence Rates
By Sex and County

COUNTY	2001 POPULATION		GONORRHEA			
	MALE	FEMALE	MALE	RATE/100,000	FEMALE	RATE/100,000
Adams	8,484	8,116	1	*	1	*
Asotin	9,870	10,830	0	*	1	*
Benton	71,973	72,827	3	*	8	11
Chelan	33,415	33,685	0	*	4	*
Clallam	32,201	32,599	2	*	3	*
Clark	175,030	177,570	45	26	55	31
Columbia	2,001	2,099	0	*	0	*
Cowlitz	46,538	47,362	2	4	8	17
Douglas	16,260	16,540	1	*	0	*
Ferry	3,787	3,513	0	*	1	*
Franklin	26,312	24,088	7	27	7	29
Garfield	1,188	1,212	0	*	0	*
Grant	38,806	37,094	9	23	6	16
Grays Harbor	34,052	34,448	2	*	3	*
Island	36,268	36,132	5	14	5	14
Jefferson	12,774	13,326	0	*	1	*
King	875,140	883,160	984	112	572	65
Kitsap	118,257	115,143	51	43	76	66
Kittitas	16,890	17,110	1	*	0	*
Klickitat	9,631	9,669	1	*	0	*
Lewis	34,464	35,036	3	*	1	*
Lincoln	5,059	5,141	0	*	1	*
Mason	25,642	23,958	8	31	2	*
Okanogan	19,784	19,916	1	*	0	*
Pacific	10,414	10,586	0	*	0	*
Pend Oreille	5,921	5,879	0	*	2	*
Pierce	354,885	358,515	352	99	308	86
San Juan	7,020	7,380	0	*	0	*
Skagit	51,554	52,546	7	14	6	11
Skamania	4,983	4,917	0	*	0	*
Snohomish	309,576	309,024	103	33	86	28
Spokane	207,355	215,045	47	23	55	26
Stevens	20,066	20,234	1	*	3	*
Thurston	102,962	107,238	9	9	24	22
Wahkiakum	1,902	1,898	0	*	0	*
Walla Walla	28,111	27,089	3	*	0	*
Whatcom	84,065	86,535	9	11	14	16
Whitman	20,390	19,910	6	29	1	*
Yakima	112,070	112,430	27	24	47	42
STATE TOTAL	**2,975,100**	**2,999,800**	**1,690**	**57**	**1,301**	**43**

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Table 4

Reported Gonorrhea Cases and Incidence Rates
By Age (15-24 Years) and County

COUNTY	2001 POPULATION		GONORRHEA			
	15-19	20-24	15-19	RATE/100,000	20-24	RATE/100,00
Adams	1,514	1,107	1	*	1	*
Asotin	1,538	1,137	0	*	0	*
Benton	11,909	8,430	3	*	1	*
Chelan	5,240	3,730	2	*	0	*
Clallam	4,520	2,965	2	*	2	*
Clark	25,493	20,985	25	98	33	157
Columbia	298	191	0	*	0	*
Cowlitz	6,909	5,383	1	*	4	*
Douglas	2,619	1,763	0	*	1	*
Ferry	699	329	0	*	0	*
Franklin	4,621	3,839	1	*	2	*
Garfield	207	76	0	*	0	*
Grant	6,649	5,080	6	90	5	*
Grays Harbor	5,256	3,611	2	*	2	*
Island	4,802	4,554	2	*	3	98
Jefferson	1,526	821	0	*	0	*
King	109,936	120,782	259	236	379	314
Kitsap	17,318	15,478	33	191	49	317
Kittitas	3,325	5,454	0	*	0	*
Klickitat	1,416	802	0	*	1	*
Lewis	5,637	3,802	1	*	1	*
Lincoln	728	322	1	*	0	*
Mason	3,544	2,571	2	*	1	*
Okanogan	3,153	1,877	0	*	0	*
Pacific	1,425	784	0	*	0	*
Pend Oreille	885	392	0	*	2	*
Pierce	53,910	49,645	167	310	229	461
San Juan	684	444	0	*	0	*
Skagit	8,031	6,021	3	*	7	116
Skamania	765	411	0	*	0	*
Snohomish	44,259	37,288	39	88	59	158
Spokane	33,321	31,352	25	75	26	83
Stevens	3,391	1,596	0	*	2	*
Thurston	16,154	13,803	13	80	13	94
Wahkiakum	263	135	0	*	0	*
Walla Walla	4,889	5,031	0	*	0	*
Whatcom	14,283	17,528	6	42	6	34
Whitman	4,989	9,643	2	*	3	*
Yakima	18,829	15,359	17	90	32	208
STATE TOTAL	**434,980**	**404,521**	**613**	**141**	**864**	**214**

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Table 5
Reported STD Cases and Incidence Rates
By Disease and County

COUNTY	POPULATION	CHLAMYDIA			GONORRHEA		
		CASES	RATE/100,000	RANK	CASES	RATE/100,000	RANK
Adams	16,600	37	223	6	2	*	*
Asotin	20,700	24	116	28	1	*	*
Benton	144,800	274	189	16	11	8	18
Chelan	67,100	117	174	18	4	*	*
Clallam	64,800	92	142	25	6	9	17
Clark	352,600	714	202	13	100	28	6
Columbia	4,100	1	*	*	0	*	*
Cowlitz	93,900	182	194	14	10	11	16
Douglas	32,800	53	162	21	1	*	*
Ferry	7,300	5	68	34	1	*	*
Franklin	50,400	162	321	3	14	28	7
Garfield	2,400	0	*	*	0	*	*
Grant	75,900	158	208	10	15	20	10
Grays Harbor	68,500	87	127	27	5	7	19
Island	72,400	107	148	24	10	14	13
Jefferson	26,100	23	88	32	1	*	*
King	1,758300	4,295	244	4	1,555	88	2
Kitsap	233,400	483	207	11	127	54	3
Kittitas	34,000	76	224	5	1	*	*
Klickitat	19,300	30	155	22	1	*	*
Lewis	69,500	65	94	31	4	*	*
Lincoln	10,200	7	69	33	1	*	*
Mason	49,600	107	216	8	10	20	9
Okanogan	39,700	85	214	9	1	*	*
Pacific	21,000	29	138	26	0	*	*
Pend Oreille	11,800	4	*	*	2	*	*
Pierce	713,400	2,336	327	2	660	93	1
San Juan	14,400	15	104	29	0	*	*
Skagit	104,100	201	193	15	13	12	15
Skamania	9,900	6	61	35	0	*	*
Snohomish	618,600	1,349	218	7	189	31	5
Spokane	422,400	736	174	19	102	24	8
Stevens	40,300	40	99	30	4	*	*
Thurston	210,200	430	205	12	33	16	12
Wahkiakum	3,800	2	*	*	0	*	*
Walla Walla	55,200	96	174	20	3	*	*
Whatcom	170,600	254	149	23	23	13	14
Whitman	40,300	74	184	17	7	17	11
Yakima	224,500	875	390	1	74	33	4
STATE TOTAL	**5,974,900**	**13,631**	**228**		**2,991**	**50**	

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Table 5 (cont.)
Reported STD Cases and Incidence Rates
By Disease and County

2001		PRIMARY & SECONDARY	EARLY LATENT	LATE LATENT	TOTAL ALL SYPHILIS	INITIAL HERPES	RATE/100,000
COUNTY	POPULATION						
Adams	16,600	0	0	0	0	11	66
Asotin	20,700	0	0	1	1	11	53
Benton	144,800	0	0	1	1	41	28
Chelan	67,100	0	0	1	1	22	33
Clallam	64,800	0	0	0	0	27	42
Clark	352,600	0	1	4	5	51	14
Columbia	4,100	0	0	0	0	1	*
Cowlitz	93,900	0	0	0	0	16	17
Douglas	32,800	0	0	0	0	14	43
Ferry	7,300	0	0	0	0	2	*
Franklin	50,400	1	0	0	1	17	34
Garfield	2,400	0	0	0	0	0	*
Grant	75,900	0	0	2	2	15	20
Grays Harbor	68,500	0	0	0	0	8	12
Island	72,400	0	1	0	1	16	22
Jefferson	26,100	0	0	0	0	9	34
King	1,758,300	41	14	55	110	672	38
Kitsap	233,400	0	0	2	2	59	25
Kittitas	34,000	0	0	0	0	12	35
Klickitat	19,300	0	0	0	0	1	*
Lewis	69,500	0	0	0	0	7	10
Lincoln	10,200	0	0	0	0	0	*
Mason	49,600	0	0	5	5	11	22
Okanogan	39,700	1	0	0	1	8	20
Pacific	21,000	0	0	0	0	3	*
Pend Oreille	11,800	0	0	0	0	2	*
Pierce	713,400	5	0	9	14	186	26
San Juan	14,400	0	0	0	0	1	*
Skagit	104,100	2	0	2	4	27	272
Skamania	9,900	0	0	0	0	0	*
Snohomish	618,600	2	1	6	9	244	39
Spokane	422,400	0	0	3	3	123	29
Stevens	40,300	0	0	0	0	6	15
Thurston	210,200	0	0	1	1	38	18
Wahkiakum	3,800	0		0	0	0	*
Walla Walla	55,200	0	0	0	0	12	22
Whatcom	170,600	1	2	1	4	37	22
Whitman	40,300	0	0	0	0	5	12
Yakima	224,500	4	0	5	9	121	54
STATE TOTAL	**5,974,900**	**57**	**19**	**98**	**174**	**1,836**	**31**
		Rate:1.0	**Rate:0.3**	**Rate:1.6**	****Rate:2.9**		

*Rates are not calculated from 0 to 4 cases because they are unreliable.

Appendix

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Sexually Transmitted Disease Morbidity reports for 1997 - 2000 are also available on the World Wide Web at http://www.doh.wa.gov/cfh/STD/morbidity.htm

The Department of Health works to protect and improve the health of people in Washington State